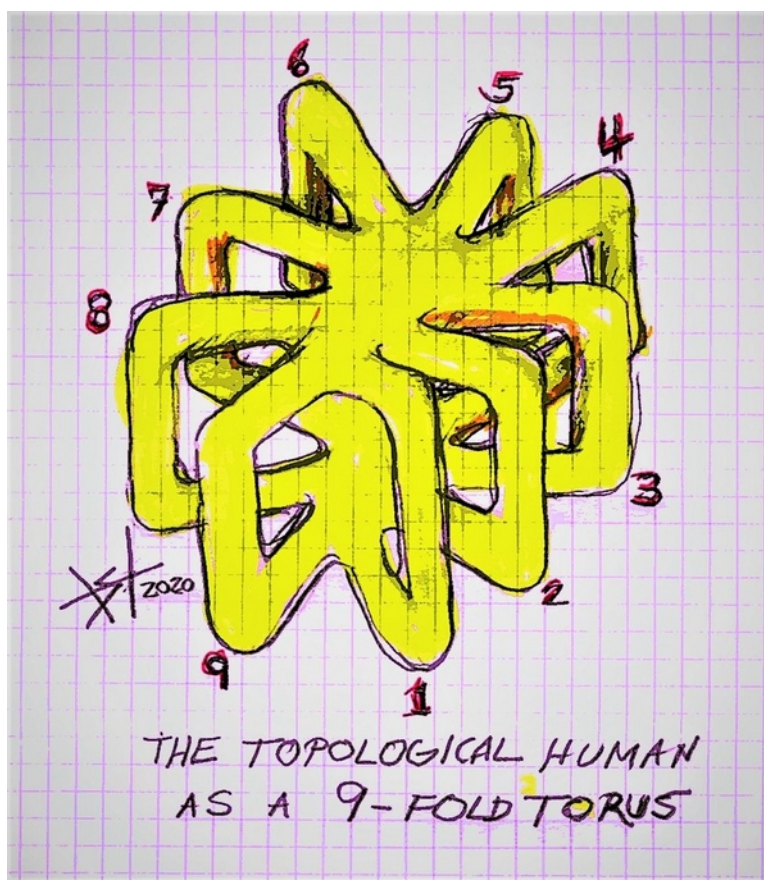


The Topological Human: A Mathematical Curiosity

Scott Matheson Hitchcock

The Topological Man is probably a 9-Fold Torus.

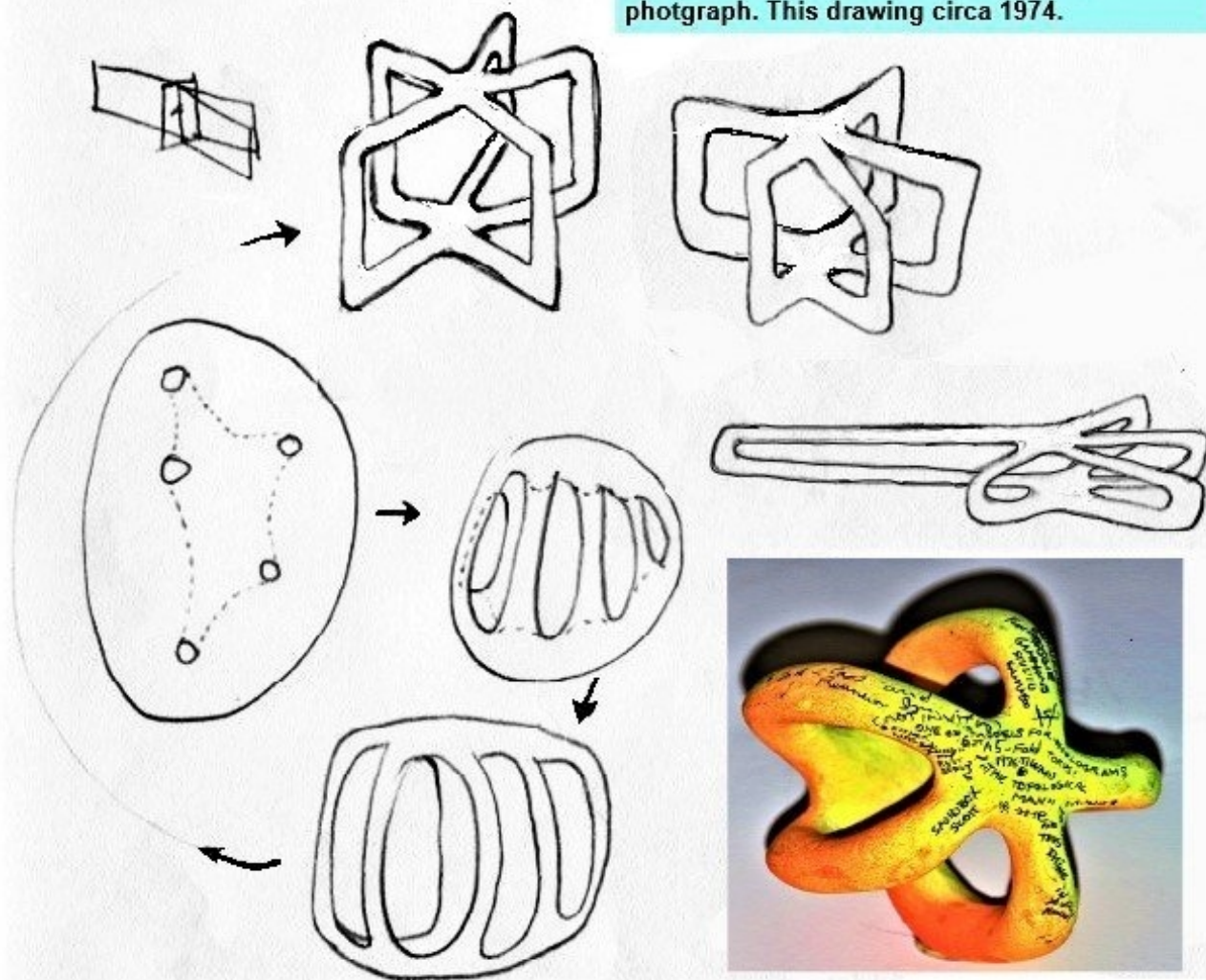
Back in 1974 when I was playing with topological surfaces, I came up with the 5-fold torus that has been illustrated here. This was an excursion into the netherworld between art and mathematics with the focus on holograms as a then new extension of sculpture. The model was simple and not meant to be a rigorous mathematical exercise. Upon reflection when one adds the eyes and ears into the model then these extra four connections to the other 5 orifices makes a 9-fold torus. The connectivity of these various entrances and exits of the boy add 4 more handles to the already 5 handles mentioned. Obviously this was an exercise in art and sculpture rather than mathematics. The topology of the skin covering of our bodies does reflect on the early development of embryonic cells and the problem of differentiation leading to the internal structure of our bodies. This was merely an intuitive experience.



The 9-Fold Torus as the Topological Human a simple topological model of the human with 9 connected orifices resulting in a 9-handle torus after topological transformation.

The "Topological Man"

As a 5-Fold Torus: Study for Holographic animation sequence using 3D sculpted models, one of which is illustrated below in the photograph. This drawing circa 1974.





The author in his holography studio at Western Michigan University 1974

NOTE: I was making holograms in the 1970's based on my topological version of the vastly simplified human body. I was interested in topology from my math studies. I visualized the body as a deformable topological surface that included the various passageways throughout our bodies. At the time I erroneously saw only 5 orifices [as seen in the second page of my paper] connected together excluding our eyes and ears which takes the number of connected passages to 9. It was mostly an exercise in mathematics applied to aesthetics as a source of amusement. I am attaching a photo of my holography studio from 1974. Later when I got more into biology, I saw that it was weakly illustrative of the process of cell differentiation whereupon cell division in complex organisms leads to various separate but connected organs and systems throughout the body. I don't know if there is any real usefulness of using topology in human anatomy and physiology. Certainly topological concepts have been used by others to model processes of growth and development.